Flathead Energy Service

Governors Energy Summit 2013

Salt Lake City, UT

Robert Ballou RPG

Main Concern

"Once a well is plugged and abandoned that resource is lost forever."

So…How do we remedy this problem?

Increase oil and gas production with Flathead Energy Services

Hyper Scratcher Tool.

Hyper Scratcher Enhanced Production Tool

How it Works

- Tubing conveyed HS is deployed to 5’ below lowermost perfs
- The pump is engaged, and tool is drawn up through the perf interval
- Chemical treatment is “delivered” to the perforation interval via jets
- 4 separate ways of cleaning in one run, Up/down of brushes, jetting action and the chemical treatment

Hyperscratcher Tool

Down hole Camera Example

Effect of Depth and Extent of Damage on Production

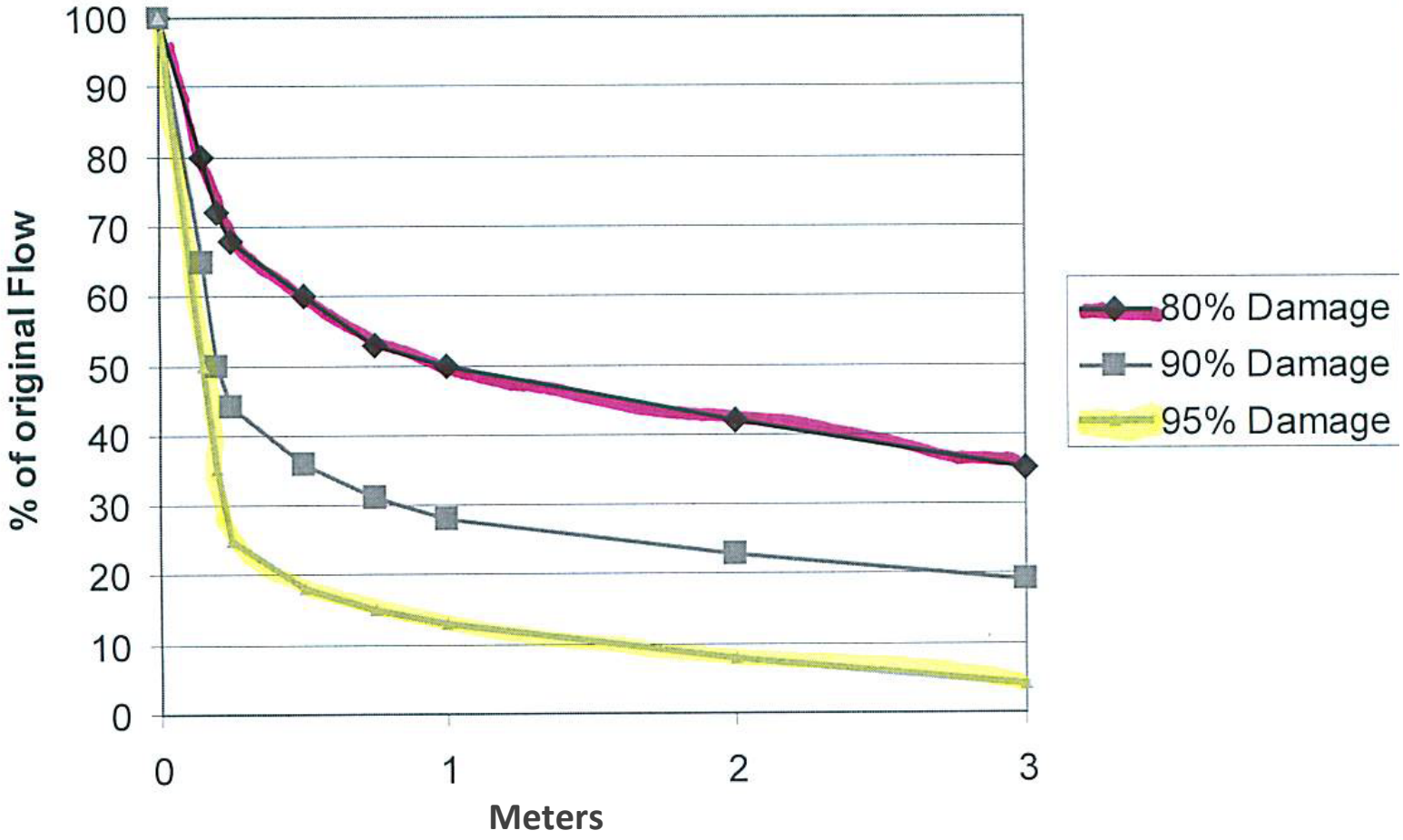


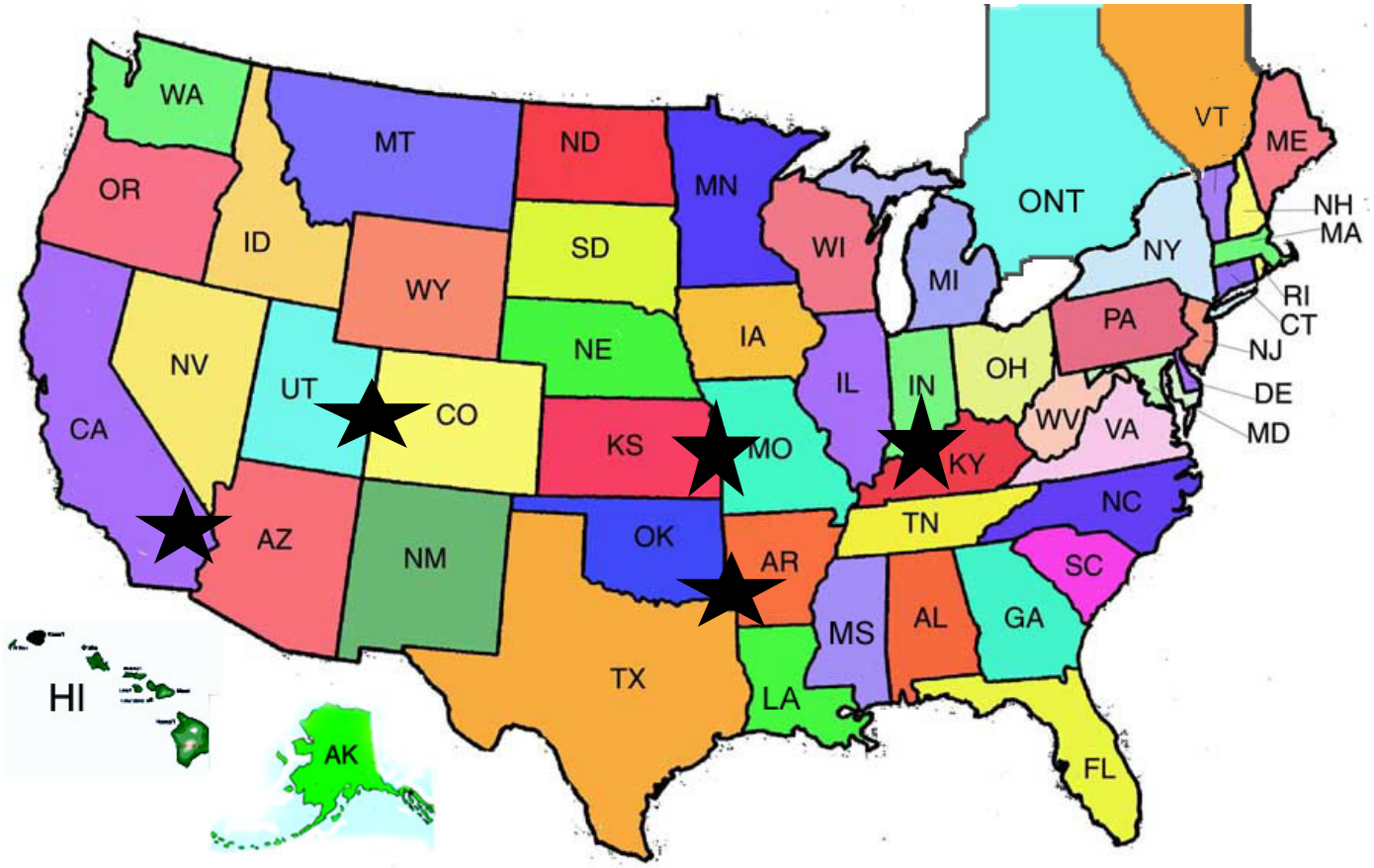
Chart courtesy of King Engineering

FES & Stripper Well Consortium

Flathead Energy Services proposed and was selected by SWC to provide partial funding for a program of downhole camera studies documenting the condition of casing and perforations before and after a Hyper Scratcher job.

- **Every dollar of stripper oil and natural gas production creates roughly one dollar of economic activity and nearly 10 jobs result from every million dollars of marginal well oil and natural gas produced.**
- **A marginal or "stripper" well is characterized by a low rate of production, typically less than 10 b/d or 60,000 cf/d of natural gas. One out of every six barrels of crude oil produced in the US comes from such wells.**

Possible Study Areas



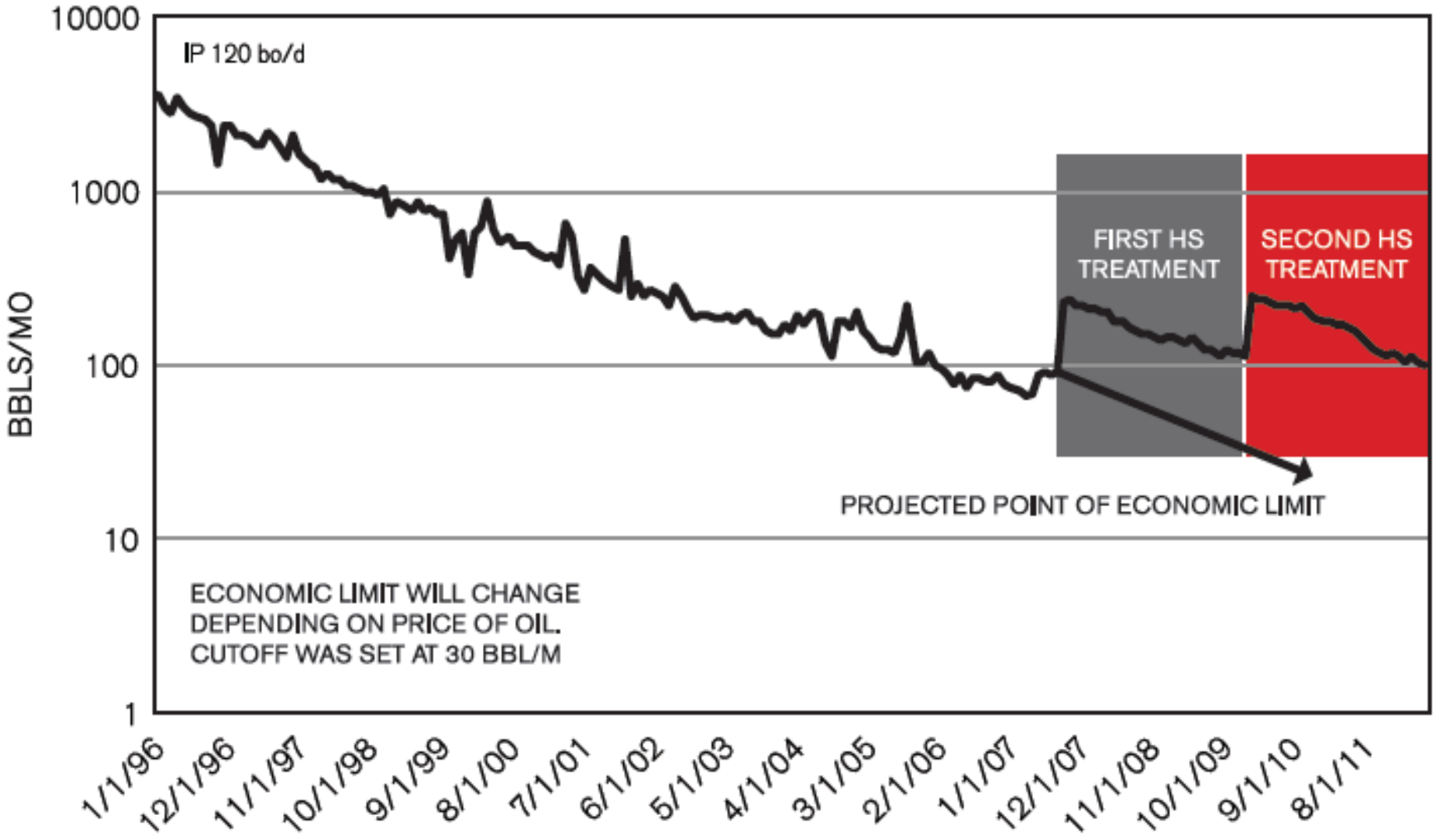
Why is this so important?

- **Increase in productivity**
- **Cost effectiveness for operators**
- **Simplicity of the design and operations.**
- **Environmentally responsible**

Positive Environmental Impact

- Utilizes existing technology
- No new wells need be drilled to increase production
- No need to re-frac or stimulate
- Very little acid/solvent for job
- Economic limit is RESET, increasing life span of wells and cumulative production

TYPICAL RESPONSE FOR HYPER SCRATCHER TREATMENT



Flathead Energy Services Worksheet-Oil				Assume 10K in costs, WO rig, Chemicals, FES Tool Rental, Tool Refurbishment and Supervision.			Yearly total	Yearly total w/30% decline
Pre Treatment BO/d	% of increase after treatment	Post Treatment bbo/d	bbl value of increase	Assume $80/bbl	$ VALUE of increase	Amount of time needed to PAYOUT		
6	50%	9	3	$80	$240	42 days	$76,400	$53,480
6	100%	12	6	$80	$480	21 days	$162,800	$113,960
6	150%	15	9	$80	$720	14 days	$249,200	$174,440
6	200%	18	12	$80	$960	10 days	$335,600	$234,920
6	250%	21	15	$80	$1,200	8 days	$422,000	$295,400

Oil Flow is Cash Flow

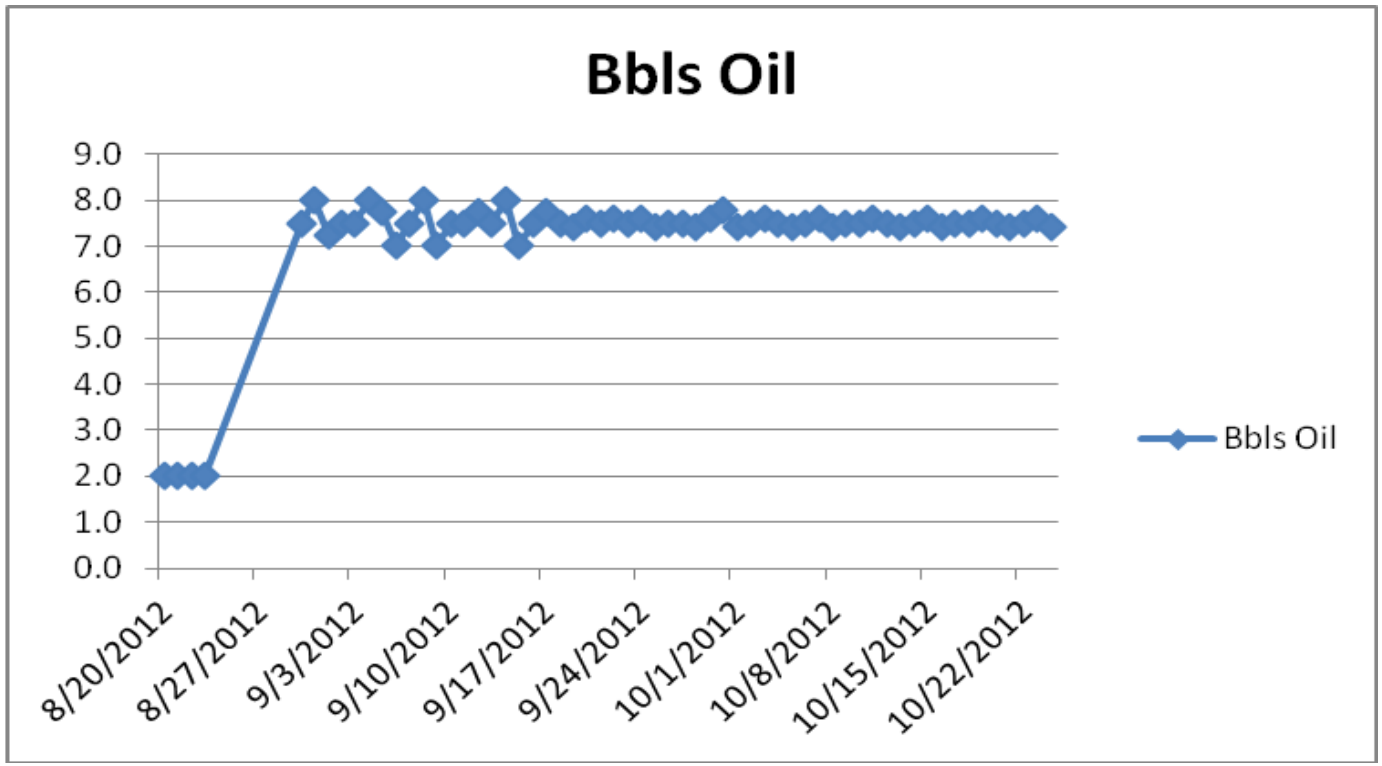
Hyper Scratcher Job in Creek Co. OK

Pressure gauge (1200 psi).

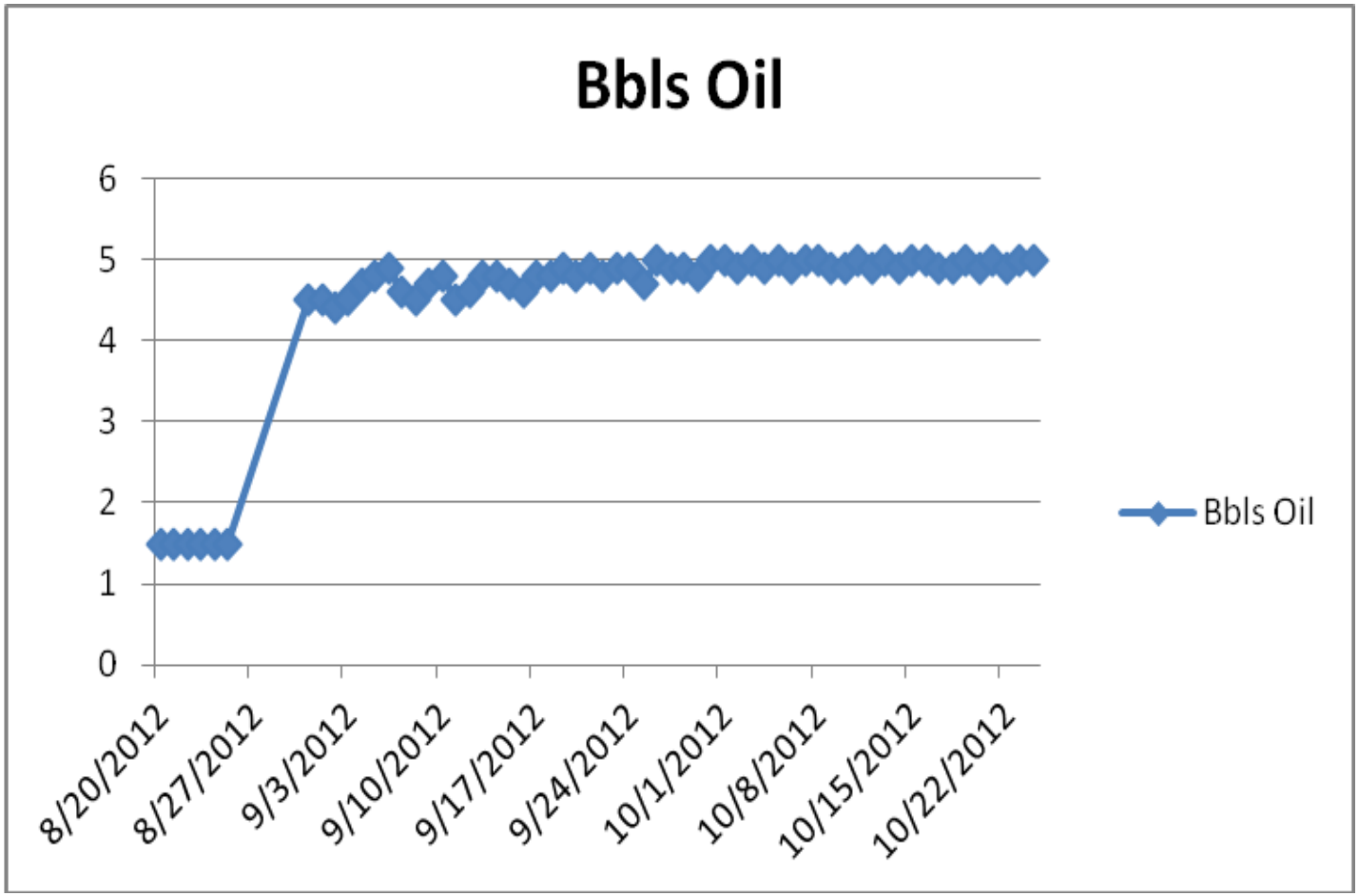
Pump truck used

Before and After

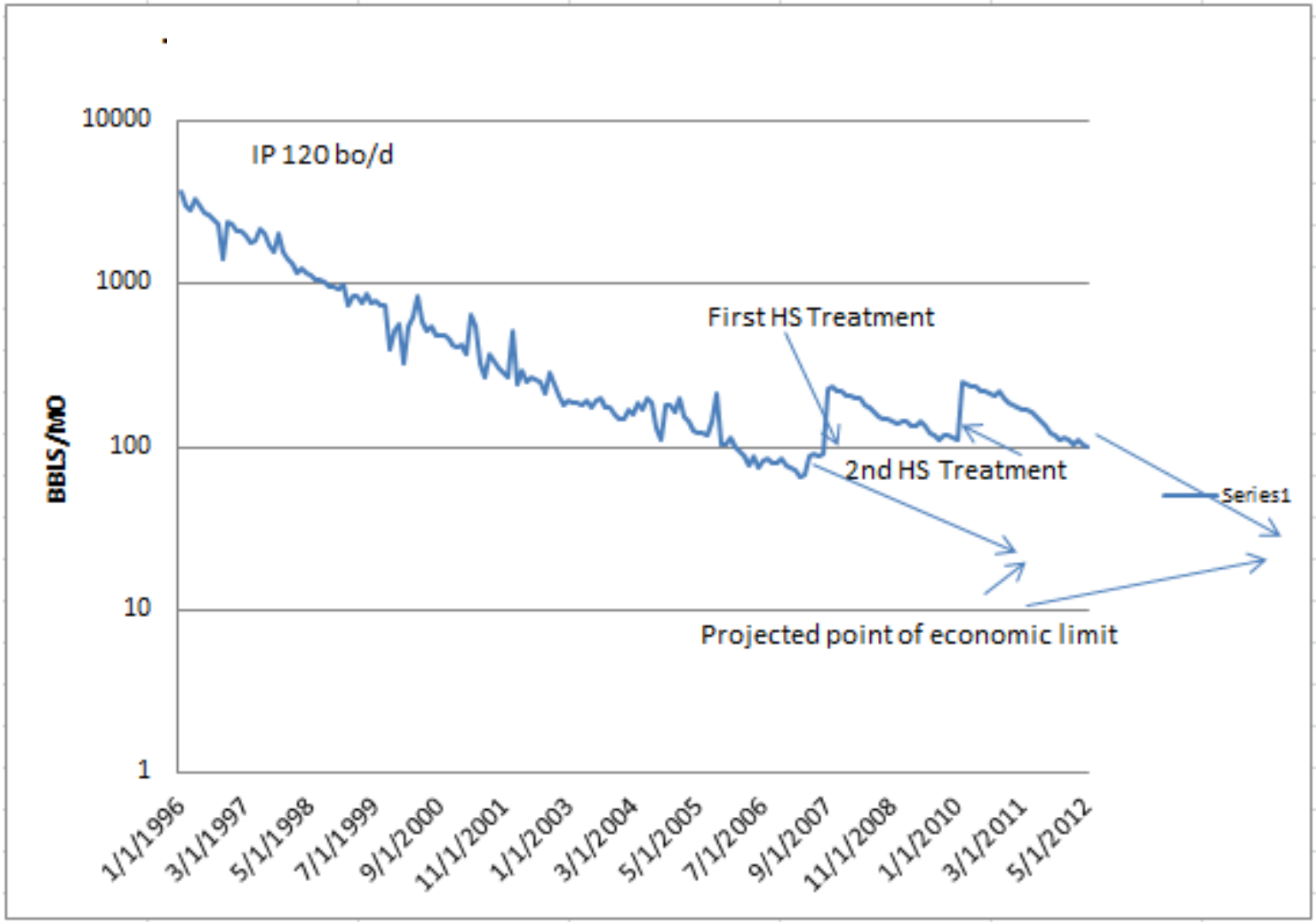
Well treated by Hyper Scratcher in Creek Co. OK. Before Treatment: production of 2 bbl/d. After Treatment production averaging about 7.5 bbls a day with no noticeable decline



Graph of Smith-Jackson Well treated with Hyper Scratcher in Creek Co. OK. Before Treatment: Production of 1.5 bbl/d. After Treatment production averaging about 5 bbls a day with no noticeable decline.



Resetting the Economic Limit



Conclusion

Additional data in the form of before and after downhole camera work combined with traditional data will be invaluable in extending this technology to operators of all types of wells increasing production and allowing a “resetting” of economic limits with the potential of “saving” thousands of stripper wells.

“Flathead” Energy

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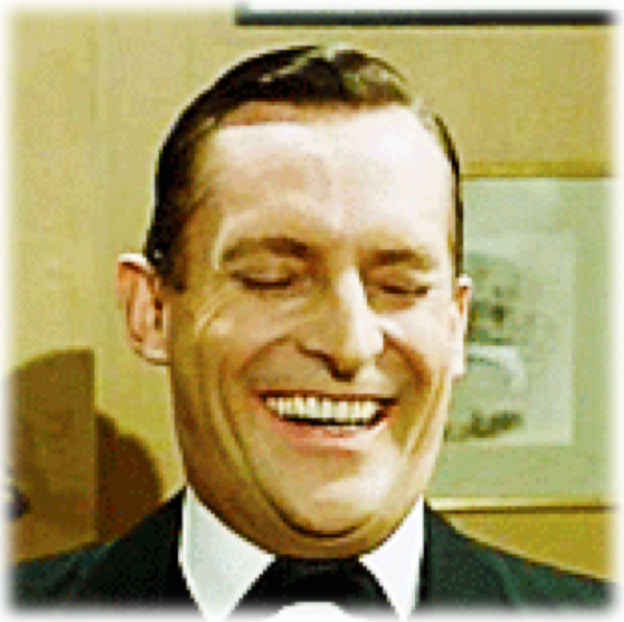

That’s brilliant!